EMPLOYEE PARTICIPATION

1) Employers shall develop a written plan of action regarding the implementation of the employee participation required by this paragraph.

2) Employers shall consult with employees and their representatives on the conduct and development of process hazards analyses (PHA) and the development of the other elements of process safety management in this standard.

3) Employers shall provide to employees and their representatives, access to process hazard analyses and to all other information required to be developed under this standard.

ATTENTION:

TO: ALL EMPLOYEE'S

YOU CAN HAVE ACCESS TO THE FOLLOWING ITEMS:

- **HAZARDOUS COMMUNICATIONS PROGRAM**
- **MATERIAL SAFETY DATA SHEET**
- **PROCESS SAFETY MANAGEMENT PROGRAM**
- **PROCESS HAZARD ANALYSIS PROGRAM**

BY CONTACTING MIKE WASHINGTON OR CORTNEY DELOACH IN THE FRONT OFFICE DURING THE HOURS OF 8:00 a.m. to 5:00 p.m. MONDAY THRU FRIDAY

EMPLOYEE PARTICIPATION

Introduction

The purpose of the following discussion is to provide a 'stand-alone' document summarizing the various programs and efforts in place at JCI Jones Chemicals Inc. designed to maximize employee participation with respect to complying with OSHA's Process Safety Management program and specifically the element of Employee Participation.

Requirements

A written plan of action is needed which details employee participation in the process. Your participation in the different elements of PSM is important. Whether it is your knowledge, work experience, training or education, your participation is a valuable part of its success. The specific requirements are listed below:

- Employers shall develop a written plan of action regarding the implementation of the employee participation.

- Employers shall consult with employees and their representatives on the conduct and development of process hazards analyses and on the development of the other elements of process safety management in this standard.

- Employers shall provide to employees and their representatives access to process hazard analyses and to all other information required to be developed under this standard.

Compliance

JCI Jones Chemicals Inc. has developed a multi-layered program in accordance with the provisions of OSHA's Process Safety Management program so as to ensure maximum employee participation with respect to both developing and implementing all fourteen elements of the program. While all JCI employees are expected to comply with the standards mandated by these regulations, selected elements of this program; i.e., the Compliance Audit and Process Hazard Analysis in particular, will be performed by a select group of Branch employees and the findings of each of these are shared with both affected employees and management. Following is JCI Jones Chemicals Inc.'s written plan of action regarding the implementation of employee participation:

- JCI Jones Chemicals Inc. has a detailed Hazard Communication Training program to ensure that in accordance with 29 CFR 1910.1200, the hazards of all chemicals repackaged, manufactured, stored, and transported by JCI Jones Chemicals Inc. have been evaluated and are transmitted to all employees. This training program is presented at a minimum, once every three years to all JCI employees, and is outlined in Chapter III of the Safety Training manual.

- A Compliance Audit is performed every three years, the purpose of which is to conduct a detailed review of all fourteen elements of OSHA's Process Safety Management program and specifically, the measures and programs that JCI has developed and implemented to address the requirements of each of these elements. The audit is conducted by a team comprised of both management (salary) and hourly employees, each of whom has a thorough understanding of the 'covered processes' in place at the facility and is led by a Branch employee that possesses not only an understanding of Branch operations and systems but the ability to effectively direct the audit process as well while not displaying any partiality. The Compliance Audit consists of a series of questions specifically designed to evaluate the facility's level of compliance and implementation of each of the fourteen elements of the Process Safety Management program, the results of that evaluation, the corrective action that must be taken should any deficiencies be identified, and the date by which the corrective action is to be completed. The two most recent compliance audits are maintained on file in the Process Safety Management program files. To all extent possible, the documentation requirements of the Process Safety Management program have been standardized across the Company and are outlined on pages SF IV 34-38 (Process Safety Management – File Set Up) of this manual. This document is used in conjunction with the Compliance Audit Checklist in evaluating the facility's compliance with the provisions of the standard, to include a review of the applicable Corporate policies and procedures.

- A Process Hazard Analysis is conducted every five years to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals; i.e., in the case of JCI Jones Chemicals Inc., chlorine and sulfur dioxide. As with the Compliance Audit, the Process Hazard Analysis is to be conducted by a team comprised of both management (salary) and hourly employees, each of whom has a thorough understanding of all operating procedures, system design and technology (how the system works), mitigation systems, emergency response procedures, and maintenance requirements. In addition to reviewing the hazards of the process, all previous 'large potential' incidents, engineering and administrative controls, consequences of failed engineering and administrative controls, facility siting, human factors, and the safety and health effects of the failure

of any controls on employees are evaluated. The Process Hazard Analysis is led by a Branch employee that is fully knowledgeable about both Branch operations and systems and the methodology selected, "What If?", for conducting the analysis.

While the list of questions to be asked in conducting the Process Hazard Analysis is relatively standardized across the Company due to the close similarity in operations at all eleven facilities, the team at each facility is expected to identify any additional questions to be asked and addressed with respect to potential consequences, recommendations, and courses of action to be taken so as to ensure the Process Hazard Analysis is in fact, facility specific. The results of the What If Hazard Analysis are documented in Section 12 of the PHA and recommendations acted upon are recorded in Appendix A – Documentation of Actions Taken of the PHA manual and are shared with all affected employees. A notice is placed on the employee bulletin board at each JCI facility to inform all employees of the location and time that the PHA is available for review.

- JCI Jones Chemicals Inc. has comprehensive Hazard Control and Reporting programs in place and all employees are continuously trained and reminded of the importance of their role in the identification and elimination of all hazards at the facility. In the event a potential hazard cannot be corrected or eliminated immediately by the employee identifying the hazard without creating another potential hazard, all employees are required to immediately bring it to the attention of the Plant Manager, the Maintenance Department, or the Branch Manager and if necessary, to complete and submit a 'Hazard Report Form' to the Branch Manager. This issue is addressed with all employees at each monthly safety training class.

- JCI's Hazard Control and Accident Investigation/Review Programs require the commitment and participation of all employees at the facility and all employees have an integral role in both preventing accidents as well as investigating any accidents after the fact should an accident occur so as to prevent its reoccurrence. As stated in JCI's Hazard Control and Accident Investigation/Review Programs, "the effectiveness of this program will depend in large part on the commitment, contribution and participation by all employees". This too, is covered with all employees at each monthly safety training class.

- JCI Jones Chemicals Inc. has an extremely comprehensive safety training program consisting of New Employee Indoctrination, Job Instruction Training (On the Job Training), and Periodic (refresher) Training. JCI's Executive VP of Safety, Security & Regulatory Compliance determines the training to be covered each month and a 'Training' memo is sent to all eleven JCI facilities at the beginning of each month

both outlining the safety training requirements for the month and the focal point of each training topic. Topics to be covered include all Plant operations, Office safety training, driver safety training, hazmat employee training, emergency response training, security training, and maintenance training. In addition, specific training requirements applicable to all employees such as JCI's Hazard Communication Program, General & Plant Safety Rules, Personal Protective Equipment, Operation of an Emergency Eyewash & Safety Shower, Transporting Hazardous Materials, Risk Management/Process Safety Management Programs, Contingency Plan, Plant Evacuation, Hazard Reporting Procedures, Smoking Policy, First Aid Procedures, Fire Prevention, Mitigation (Safety) Systems, and Good Housekeeping are just a few of the topics covered. All JCI employees are expected and required to participate in the safety training program and a method has been established to evaluate an employee's level of understanding of the material covered; i.e., via discussion, demonstration, and or written tests.

Summary

It should be clear from the above discussion the extent to which JCI Jones Chemicals Inc. as a Company strives to include, encourage, and require employee participation, both management (salary) and hourly employees alike, in efforts to comply with the Employee Participation element of OSHA's Process Safety Management Program. At the same time, it should be kept in mind that the programs discussed above are in place first and foremost, to improve and maintain the level of safety for all JCI employees and secondarily, to specifically address PSM requirements. The continual improvement of our safety program and the involvement of all employees at all levels always have been and will continue to be our goal. Any questions regarding the above should be directed to JCI's Executive Vice President of Safety, Security and Regulatory Compliance.

JCI Milford P&ID Symbology Key

Pipe and Tubing

- Liquid Chlorine (A-106, SCH 80, C.S., Seamless)
- Liquid Chlorine (PVDF, Kynar, Lined C.S.)
- Liquid Chlorine (SCH 80, PVDF, Kynar)
- Gaseous Chlorine (A-106, SCH 80, C.S., Seamless)
- Gaseous Chlorine (PVDF, Kynar, Lined C.S.)
- Gaseous Chlorine (SCH80, PVDF, Kynar)

- Chlorine Vacuum (A-106, SCH 80, C.S., Seamless)
- Chlorine Vacuum (SCH 80, PVC)
- Sodium Hypochlorite (SCH 80, PVC)
- Compressed Air (A-106, SCH 80, C.S., Seamless)
- Compressed Air Tubing (1/8" or 1/4" Plastic)

Valves

- Manual Valve (Ball or Butterfly, Specific to Product)
- Actuated Valve (Ball, Specific to Product, AO/SC)
- Actuated Valve (Ball, Specific to Product, AO/AC)
- Actuated Valve (Ball, Specific to Product, SO/AC)
- Modulation Valve (Specific to Product, NC, AO/AC)
- Check Valve (Ball or Swing, Specific to Product)
- Air Motor (Valve Closure, High and Low Torque)

Transfer Hoses

- Railcar, Chlorine-(Monel Hose and SCH 80 Nipples w/ S.S. Chaffe Guard)
- Railcar, Pad Air-(PTFE Liner, PVDF Braid w/SCH 80 Monel Nipples, CPE Jacket)
- Station Transfer, Chlorine-(PTFE Liner, PVDF Braid w/SCH 80 Monel Nipples, CPE Jacket---or---
  ---Monel Hose and SCH 80 Nipples w/ S.S. Chaffe Guard)

JCI Milford P&ID Symbology Key

Electrical

	Control Wire
	Visual Alarm- (Red Revolving Beacon)
	Audio Alarm- (90 Decibles Min.)
	Plant E-Stop Button- (Push-Pull Mushroom Type)
	System Buttons- (Type specific to system and function)
	3-Way Solenoid Valve- (120volt ASCO Redhat)
	4-Way Solenoid Valve- (120volt ASCO Redhat)
	Gas Detection Unit- (EIT Quadscan or Industrial Scientific 820 w/multiple relays)
	Gas Detection Probe- (Scott Series 4500 Sensor Stik or Industrial Scientific ITRANS, Chlorine 0-5ppm)
	Stand Alone Gas Detection Probe- (Scott 4600MB, SO2 0-10ppm)
	Controller- (Foxboro 873 Controller w/multiple relays and Barber Coleman 7EF temperature display)
	ORP / Temperature Probe- (Foxboro 871A Probe)
	Scale- (4000lb minimum ton, 300lb minimum cylinder-Programmable Digital Scale w/multiple Relays)
	Pressure Switch- (S.O.R. or Ashcroft w/tantalum diaphragm and flourolube fill)
	Differential Pressure Switch- (S.O.R. w/tantalum diaphragm and fluorolube fill)

JCI Milford P&ID Symbology Key

Miscellaneous

Gauge- (Pressure and Vacuum Combination, w/Flourolube Fill and Tantalum Diaphragm, Range is System Specific)

Expansion Chamber- (Inverted 150# Chlorine Cylinder, Equipped w/Rupture Disc, Disc Holder is Forged Steel, PUUT Rupture Disc, Monel or Hastelloy 276, Designed to Rupture at 392.93 PSI)

Vacuum Eductor- (2" PVC, Flanged)

Centrifugal Pump- (Durco 3x2 - High Silicon Iron Bleach Pump, 165 GPM @ 75ft Head)

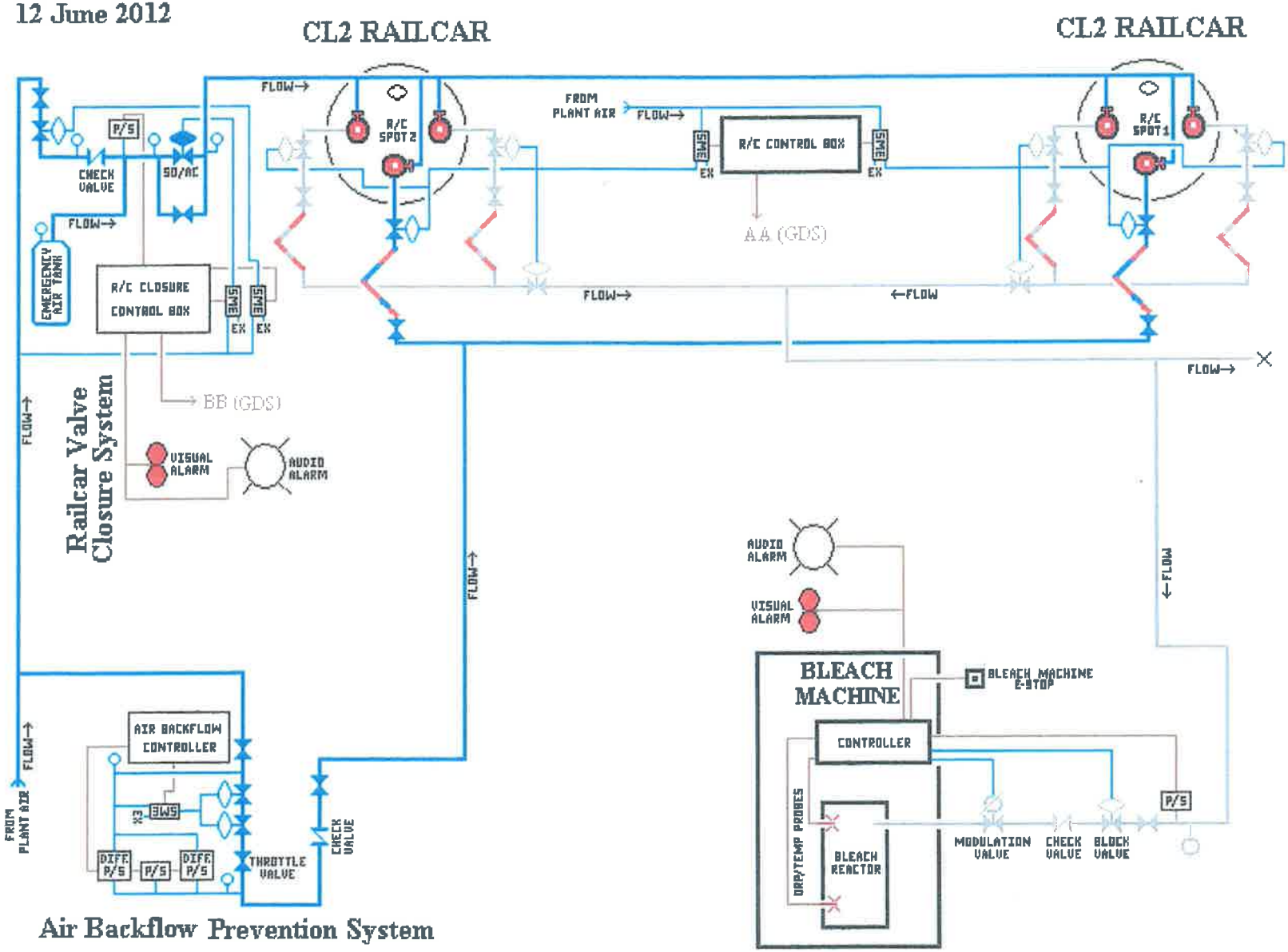
Heat Exchanger- (American Heat Exchanger Corp., w/66 Titanium Plates or Alfa Laval M6-MFG w/ 22 Titanium Plates and Heat Transfer Area of 79.78 Sq.Ft., Operating Temps 32f-200f)

Operating Parameters

Chlorine	Pressure 30"HG Vac - 165PSI Temperature -29.6f - Ambiant
Bleach	Pressure 0-65 PSI Temperature -20f - 95f

JCI Milford P&ID Part #1

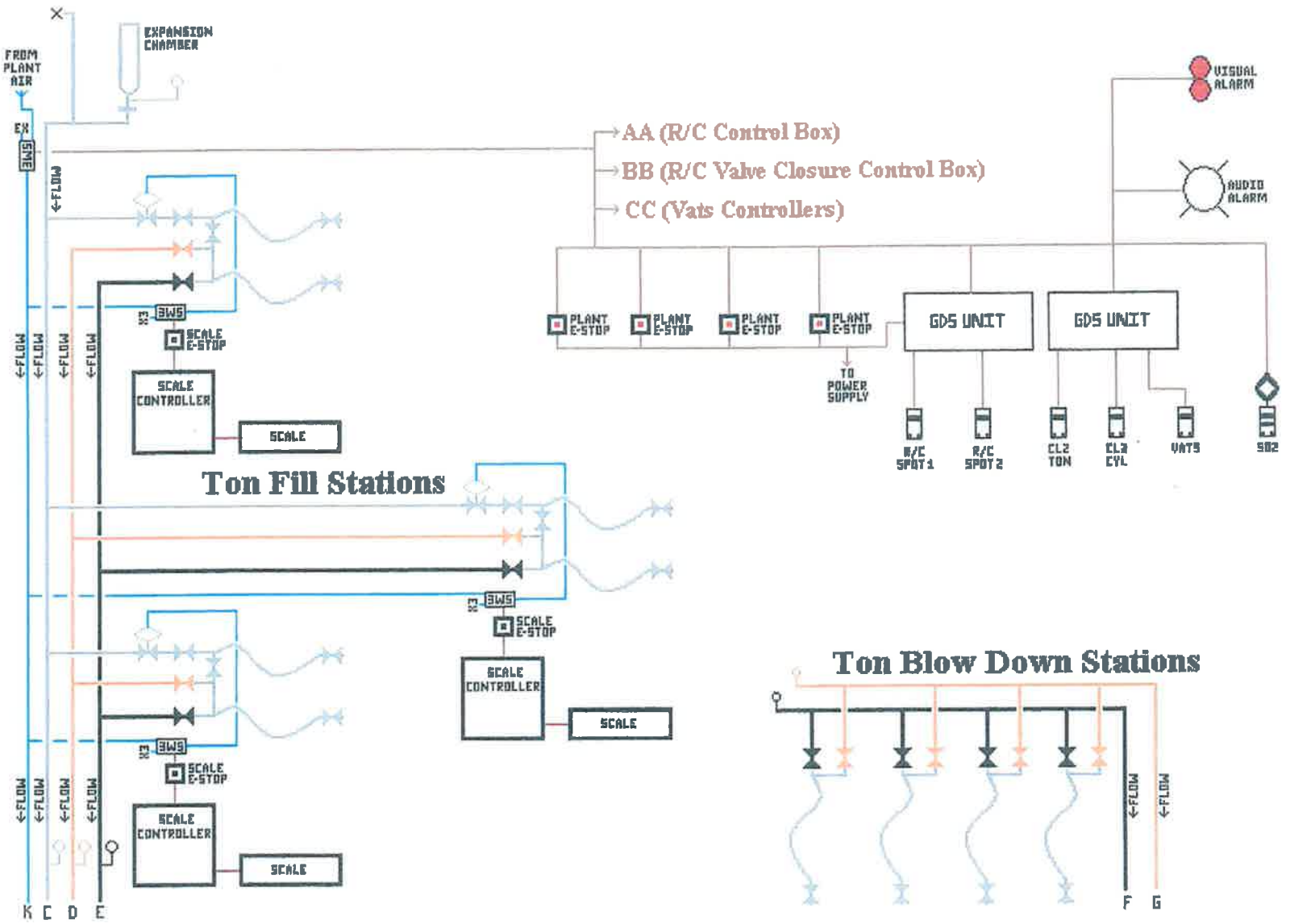
12 June 2012



Air Backflow Prevention System

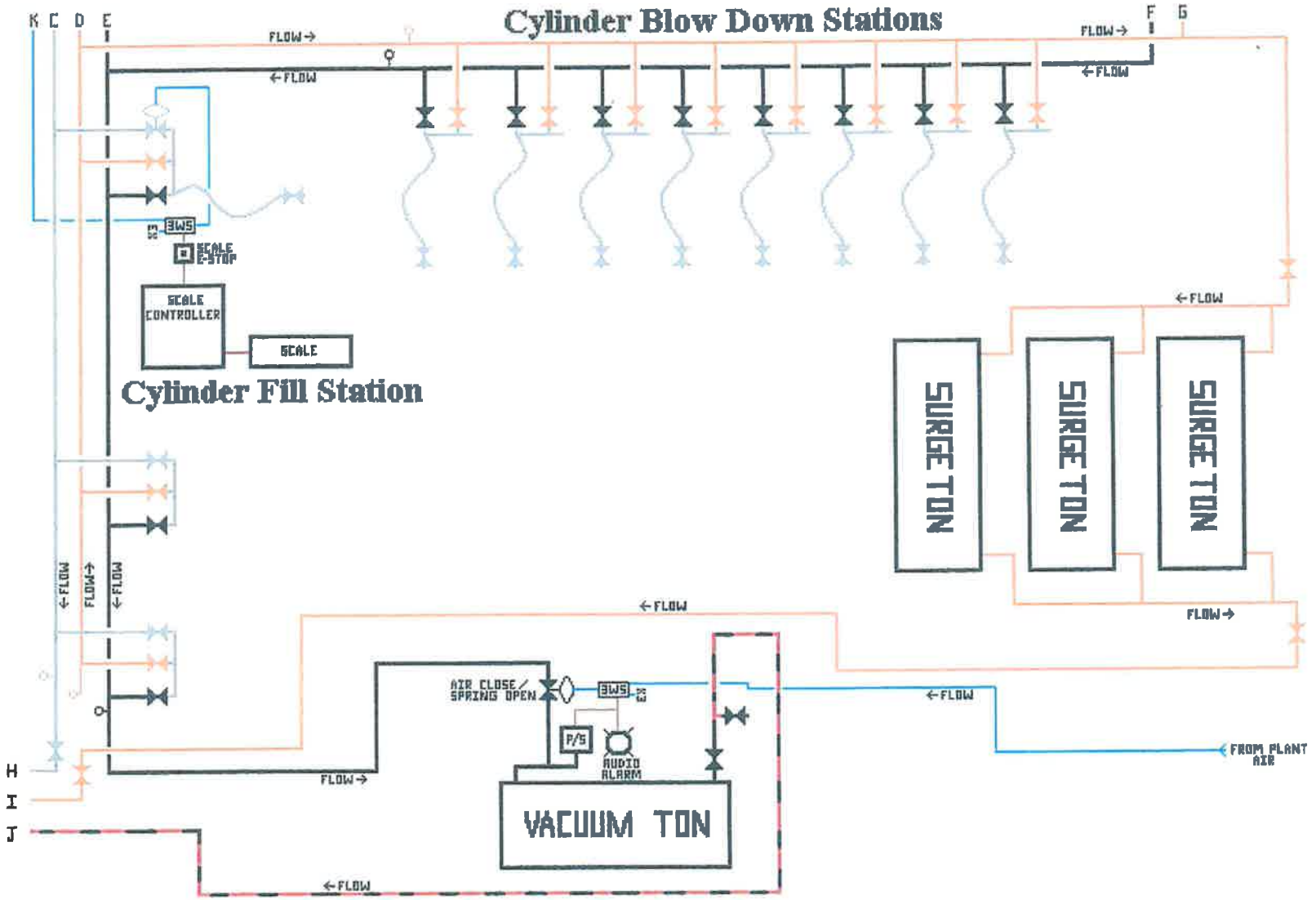
JCI Milford P&ID Part #2

12 June 2012



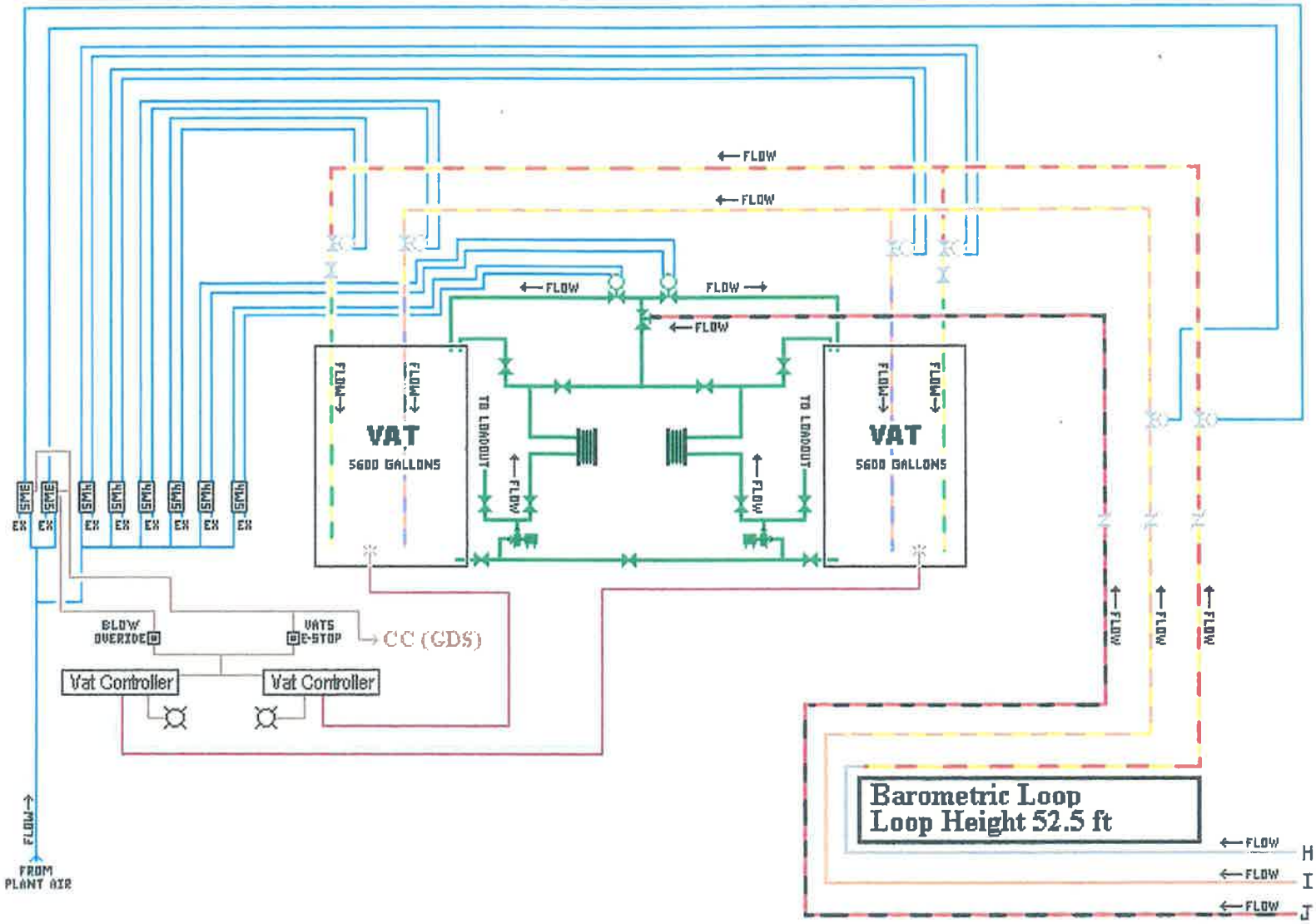
JCI Milford P&ID Part #3

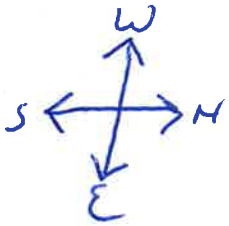
12 June 2012



JCI Milford P&ID Part #4

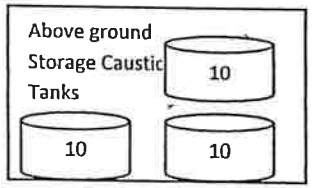
12 June 2012





Revised site plan 2/14/11
Sara Title III

JCI Jones Chemicals
Milford, Virginia



Sodium Hydroxide-6 | Sodium Hydroxide-5 | Sodium Hydroxide-4 | Chlorine-3 | Chlorine-2 | Chlorine-1

Office

Inside Tank-Sodium Hypochlorite
8
9

13
Chlorine Ton & Cylinder Processing Area

14
Outside Chlorine
Ton Storage Area

Indoor
Caustic Tank
11
12

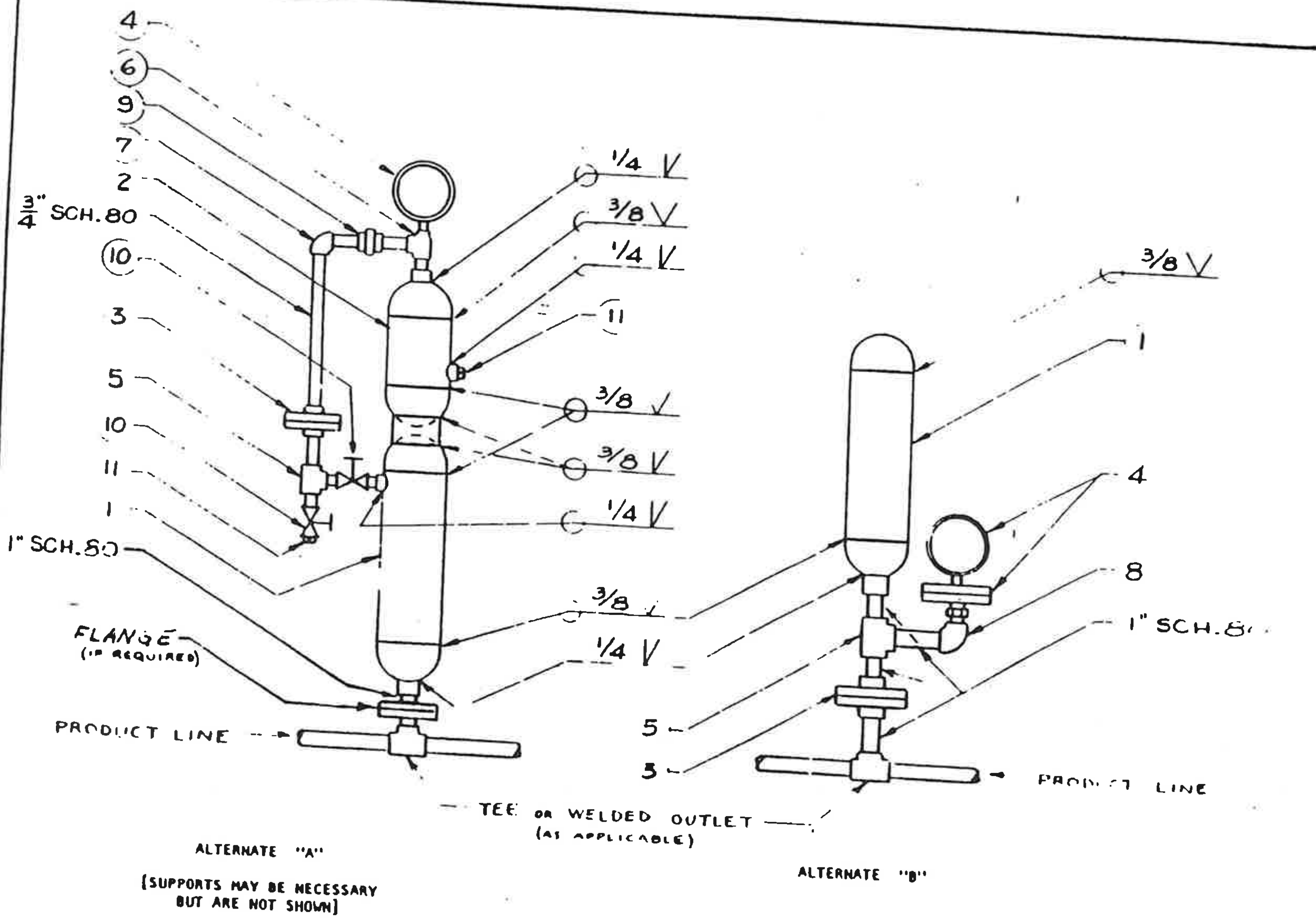
7
Sulfur Dioxide Ton
& Cylinder Area

15
16

17 | 18 | 19

1. 90 ton Chlorine Railcar
2. 90 ton Chlorine Railcar
3. 90 ton Chlorine Railcar
4. 50% Sodium Hydroxide Railcar
5. 50% Sodium Hydroxide Railcar
6. 50% Sodium Hydroxide Railcar
7. Sulfur Dioxide Cylinder & Ton Area
8. Sodium Hypochlorite Inside Tank
9. Sodium Hypochlorite Inside Tank
10. Above Ground Storage Caustic Tanks
11. Indoor Caustic Tank
12. Indoor Caustic Tank
13. Chlorine Cylinder & Ton Processing Area
14. Outside Chlorine Ton Storage Area
15. Sodium Hypochlorite Above Ground Storage Tanks
16. Sodium Hypochlorite Above Ground Storage Tanks
17. 330 Gallon Totes-Caustic
18. 55 Gallon Drums-Caustic
19. 55 Gallon Drums-Hypochlorite

9



ITEM	NAME OF PART	
1	PRIMARY EXPANSION CHAMBER	[Note 1]
2	SECONDARY EXPANSION CHAMBER	[Note 2]
3	RUPTURE DISC (400 P. S. I.)	[Note 3]
4	PRESSURE INDICATOR OR ALARM SWITCH, 1/2" COMM.	[Note 4]
5	TEE	[Note 5]
6	REDUCING TEE	[Note 5]
7	ELBOW	[Note 5]
8	REDUCING ELBOW	[Note 5]
9	UNION	[Note 5]
10	VALVE	[Note 5]
11	PLUG	[Note 5]

NOTES.

1. CAPACITY - 20% OF LINE VOLUME
2. CAPACITY - 10% OF LINE VOLUME
3. 400 PSI SETTING SUITABLE FOR MANY SYSTEMS SETTING MUST NOT EXCEED SYSTEM DESIGN PRESSURE
4. LIQUID-FILLED PROTECTIVE DIAPHRAGM OPTIONAL
5. FITTINGS SHALL BE FORGED CARBON STEEL, 3000 LB CWP
6. IF ITEMS 1 AND 2 BE OF WELDED CONSTRUCTION, SAME SHALL BE FABRICATED IN ACCORD WITH THE ASME CODE. IF ITEMS 1 AND 2 BE OF SEAMLESS, DRAWN CONSTRUCTION, SAME SHALL BE FABRICATED IN ACCORD WITH DOT OR CTC SPECIFICATIONS, WITH A MINIMUM DESIGN PRESSURE OF 480 PSI

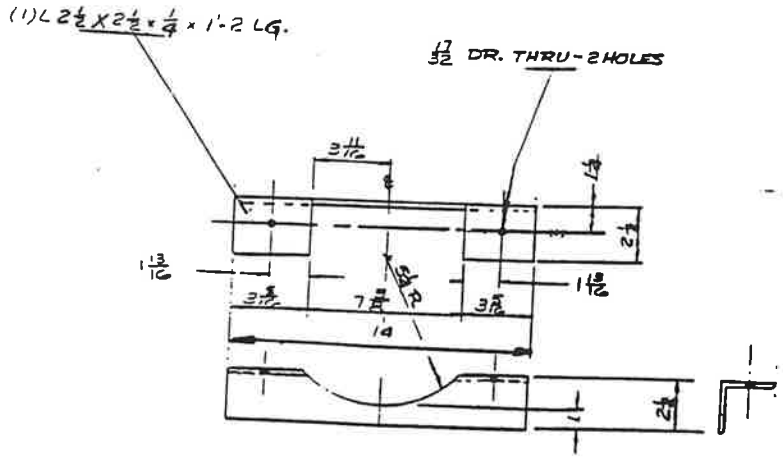
ISS.	DATE	REVISION	APPR
[illegible]	[illegible]	[illegible]	
3	1/1/7[illegible]	[illegible] Note 3, [illegible]	[illegible]
2	[illegible]	PART 9, NOTE [illegible] FLANGE WAS UNION	[illegible]

THE CHLORINE INSTITUTE, INC.
NEW YORK, N. Y.

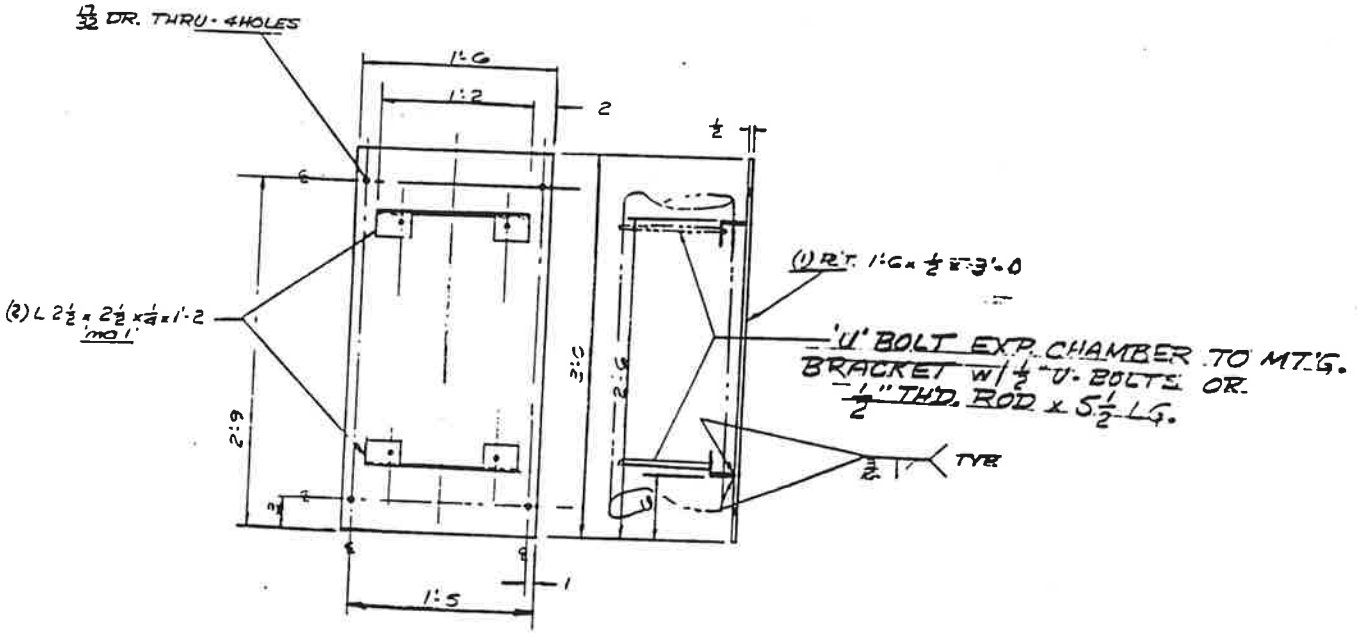
CHLORINE EXPANSION CHAMBERS

DRAWN	[illegible]
TRACED	
CHECKED	[illegible]
APPROVED	[illegible]
DWG. NO.	136
ISSUE	4

This drawing was developed by a technical committee of the Institute. The user should be aware that changing technology or regulations might require revision of the drawing. Appropriate steps should be taken to insure that the drawing is current when used.



MOUNTING ANGLE 'mo1' DETAIL



WALL MT'G. BRACKET DETAIL

JONES CHEMICALS, INC. CALEDONIA, NEW YORK	
TITLE MT'G. BRACKET DETAIL CHLORINE EXPANSION CHAMBER	
SCALE —	DRAWING NUMBER
DR. JM DATE 3/7/90	III-18.2
CH. DATE	
APPR. DATE	